



Diskusi Project Lab **SPRS** 26 Februari 2021



DESIGN & SYSTEM ENGINEERING LABORATORY

MECHANICAL ENGINEERING DEPARTMENT BRAWIJAYA UNIVERSITY MALANG
Jl. MT. Huriyasa 147 Malang (65131) 649143, Fax: 102681

PRODUCT



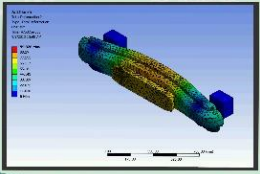
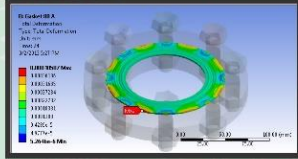
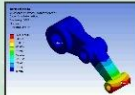
- COMPUTER SIMULATION TRAINING (FINITE ELEMENT & FINITE VOLUME METHOD, CAD/CAM, STRESS ANALYSIS, FLUID FLOW, etc)
- TRAINING & TEACHING AID PRODUCTION (PLC - PNEUMATIC)
- STUDY GROUP FOR RESEARCH, THESIS & SCIENTIFIC COMPETITION

FACILITIES

- COMPUTER I7 + PRINTER
- FESTO & SCHNEIDER PLC, SMART RELAY
- CONVEYOR & PNEUMATIC TEACHING AID
- RESEARCH - THESIS POSTER
- COMFORTABLE ROOM

RESEARCH

STRESS ANALYSIS : CRASH TEST, HELM IMPACT TEST
OPTIMUM DESIGN : METAL GASKET, BIOMEDICAL
METAL FORMING & METAL CUTTING SIMULATION
FRACTURE MECHANIC & FATIGUE
HEAT TRANSFER & FLUID FLOW
AUTOMATIC CONTROL & MANUFACTURING SYSTEM
COMPOSITE MODELLING



CONTACT PERSON :
HEAD OF DESIGN AND ENGINEERING SYSTEM LABORATORY
Dr. Eng. MOCH. AGUS CHOIRON, ST., MT
HP. 0821 3924 9937
EMAIL : agus_choiron@ub.ac.id

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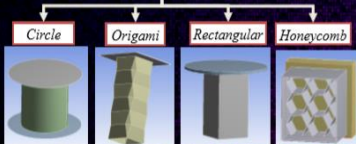
CRASHBOX PROJECT

DESIGN AND SYSTEM ENGINEERING LABORATORY
Mechanical Engineering Department, Brawijaya University, Malang City



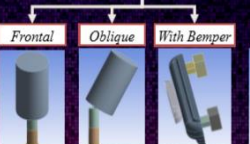
CRASHBOX

Shape Variation



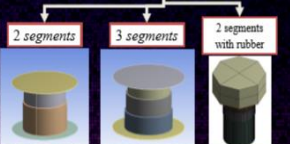
Najmi (2012), Imam (2014), Wahyu (2012), Dewi (2018)

Model Test Variation



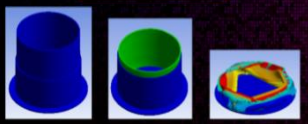
Fikrul (2014), Farid (2014), Erwin (2013)

Multi-Segment Variation



Mako (2012), Agus Choiron (2014), Halman (2017)

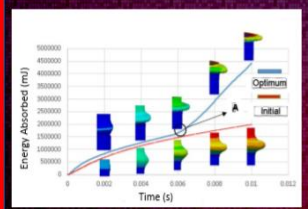
Deformation Mode



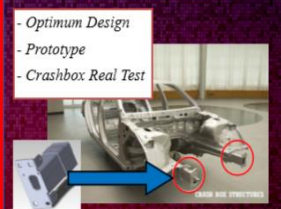
The initial condition to final condition from Two-Segments Crashbox using impactor with frontal direction

Designed by: Stefanus Sugianto

Energi Absorption Performance and Deformation Mode

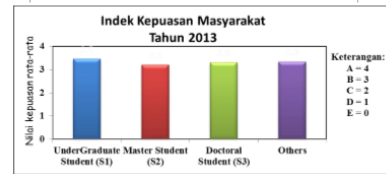
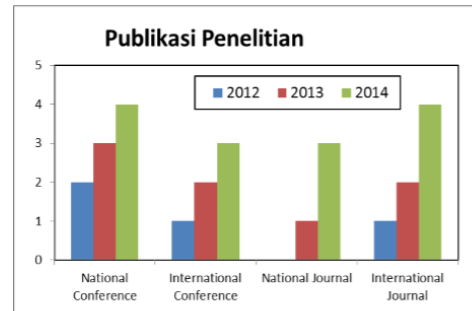
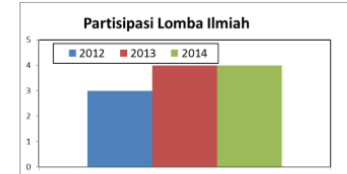
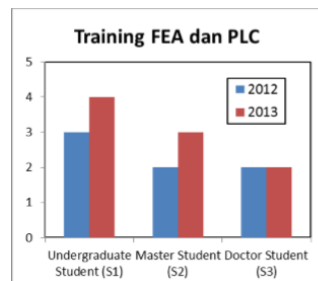
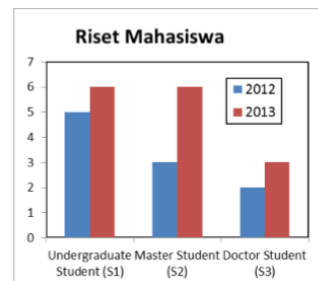


Future Project



- Optimum Design
- Prototype
- Crashbox Real Test

SPRS in Number



Program Kerja SPRS

1. Finite Element Analysis Centre
2. Attending Academic Meeting & Competition
3. Develop Innovation & Customized Mechanical Design

ROADMAP PENELITIAN SPRS (2013-2024)											
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Simulasi dan modelling kasus-kasus di bidang Desain, Produksi, Material dan Konversi Energi (Lingkup Internal Jurusan Mesin)											
		Simulasi produk yang memiliki inovasi teknologi berbasis kebutuhan lokal-nasional bekerjasama dengan Jurusan lain (Lingkup Eksternal Jurusan)									
			Perancangan sistem terintegrasi pada tahapan pra desain melalui koneksi CAD-CAE-CAM untuk mendapatkan produk yang optimal								
								Produk unggulan hasil dari optimasi desain dengan sistem terintegrasi melalui koneksi CAD-CAE-CAM dan menjadi pusat konsultan Stress Analysis untuk kasus pengembangan produk-produk inovasi teknologi berbasis kebutuhan skala lokal dan nasional			

Program Kerja Mendesak SPRS

1. Pelatihan ANSYS
2. Lomba dan Presentasi pada Seminar Nasional/Internasional
3. Mensukseskan Project Lab (Target 2024 Produk Crash box SPRS)

Training ONLINE

Koleksi buku Training

Training Standar : WB, CFX, Fluent, AIM

Training Custom : Composite, **Turbine**

Presenter Seminar

Skripsi

Latihan Project

Develop Kasus

Database Riset **Crash Box**

Master Procedure Setting Solving Crash Box

Verifikasi dan Validasi

Penetapan Desain Crash Box paling optimum → Paten

Manajemen Lab

AIM

Buku Kenangan alumni

Penataan dan Pemeliharaan

Skala Prioritas

**Training Turbine
ONLINE**

Training internal Turbine dari alumni
Training Rolling UNMER

Modul +PPT+file gambar kasus

Sertifikat

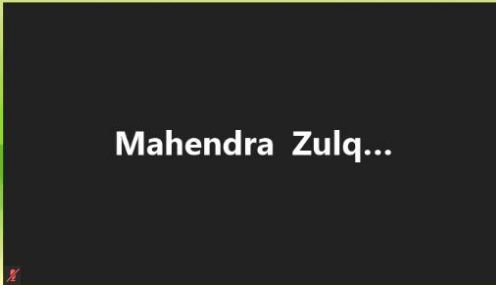
**Presenter Seminar
NASIONAL**

Skripsi – Dzia + Bayu

Manajemen Lab

AIM

SOP PC Akses
Dari Luar



Participants (6)

- C** Choiron (Host, me) [Microphone icon] [Video icon]
- K** Katanda [Microphone icon] [Video icon]
- -17Dzia [Microphone icon] [Video icon]
- C** Clerin [Microphone icon] [Video icon]
- MZ** mahendra zulqarnaen [Microphone icon] [Video icon]
- MZ** Mahendra Zulqarnaen [Microphone icon] [Video icon]

Activate Windows
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Invite Mute All ...

PPT Hasil CB - PowerPoint

Katanda Fajar Fauzi

File Home Insert Design Transitions Animations Slide Show Review View Help Foxit PDF Tell me what you want to do

Clipboard Slides Font Paragraph Drawing Editing

Variasi Pemodelan Crash Box

- ❖ Crash Box Silinder
 - Pemodelan Impactor: Lingkaran dan Kotak
 - Pemodelan Fix Support: Dengan Tumpuan dan Tanpa Tumpuan
 - Running Explicit Dynamics vs LS-Dyna
- ❖ Crash Box Persegi
 - Pemodelan Impactor: Volume
 - Pemodelan Fix Support: Dengan Tumpuan dan Tanpa Tumpuan
 - Running Explicit Dynamics vs LS-Dyna

Slide 2 of 19 English (Indonesia) 62%

mahendra zulqarnaen

Choiron

clerin

-17Dzia

Katanda

Mahendra Zulqa...

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Mute Stop Video Security Participants 6 Chat Share Screen Record Reactions End

PPT Hasil CB - PowerPoint Katanda Fajar Fauzi

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Geometri Crash Box Running Explicit Dynamic vs LS-Dyna

CrashBox Cylinder **CrashBox Rectangular**

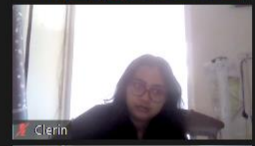
Impactor

$g = 9,8066 \text{ m/s}^2$

$v = 7,67 \text{ m/s}$

Fixed Support

Slide 5 of 19 English (Indonesia)



Mahendra Zulqa...

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